

National Satellite Test Bed

WAAS NPA Summary User Guide

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Non-Precision Approach (NPA) Summary

WAAS Web Application

Overview of Non-Precision Approach (NPA) Summary

As part of the William J. Hughes Technical Center WAAS Test Team website (www.nstb.tc.faa.gov), the WAAS Web Application Portal allows you to view The Non-Precision Approach (NPA) Summary. The NPA Summary portion of this website allows you to:

- View all NPA statistics for any dates you choose (up to 6 years in the past)
- View Position Errors, AvCon failures, and Data Outages

The PA Summary web application can be found at [this link](#) or by navigating to the [NSTB site](#) and following the “PA Summary” link under the “Web Tools” section in the sidebar.

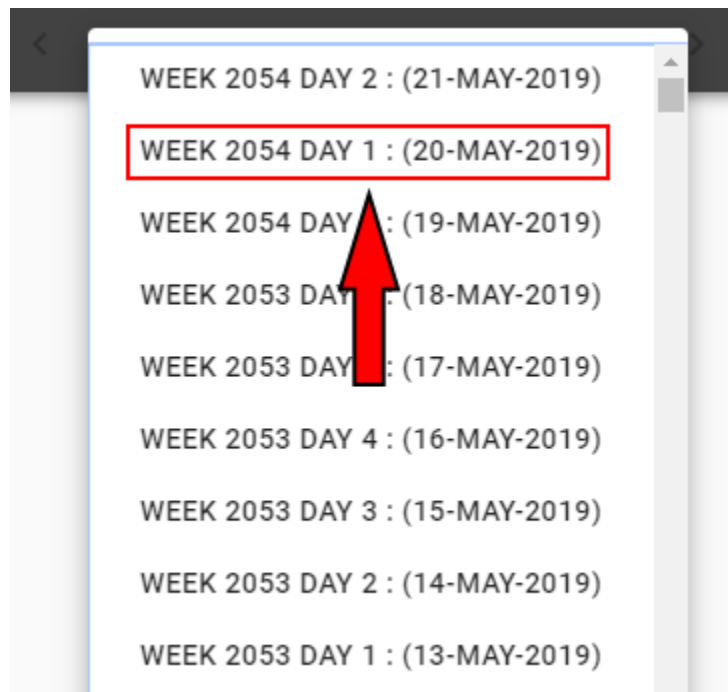
Bringing Up a Daily Summary

To use the NPA Summary the first step is to select a date.



Clicking the highlighted button will reveal a drop-down menu of dates. When the user has clicked on a link, the application will load all relevant data for the selected date.

Once you choose a date, the following screen will appear. In this case, we chose Week 2054 Day 1: (20-May-2019). This means it is from a Tuesday 2054 weeks since the GPS epoch (See the red arrow).




NPA Summary Sections

Position Errors

The Position Errors section shows receiver-specific errors. These are errors in which the position solution tool is in Non-Precision Approach (NPA) mode. The NPA portion of the website does not use the WAAS ionospheric corrections. Also, NPA evaluates only in the horizontal direction. The position solution tool calculates the horizontal position errors and HPLs for each receiver location. The first table shows the maximum and minimum error statistics among all receivers in meters.

Position Stats		
Statistic	Site	Error
95% Maximum Error	Honolulu	3.45
95% Minimum Error	Albuquerque	0.72
Maximum Error	Honolulu	4.36
Minimum Error	Iqaluit	1.12

The NPA Max errors for each receiver are shown in the second table. All Horizontal Errors > 3m are highlighted in yellow.

Position Errors				
ID	City	95% Max Error	Max Error	
27585	Albuquerque	0.72	1.16	
27841	Anchorage	0.87	1.38	
33218	Atlanta	0.81	1.23	
34753	Barrow	0.80	1.21	
34241	Bethel	1.01	1.54	
27329	Billings	0.94	1.36	
28353	Boston	0.95	1.43	
32449	Cleveland	0.94	1.69	
33729	Cold Bay	1.14	1.75	
33985	Fairbanks	0.96	1.50	
35777	Gander	0.99	1.53	
29377	Honolulu	3.45	4.36	

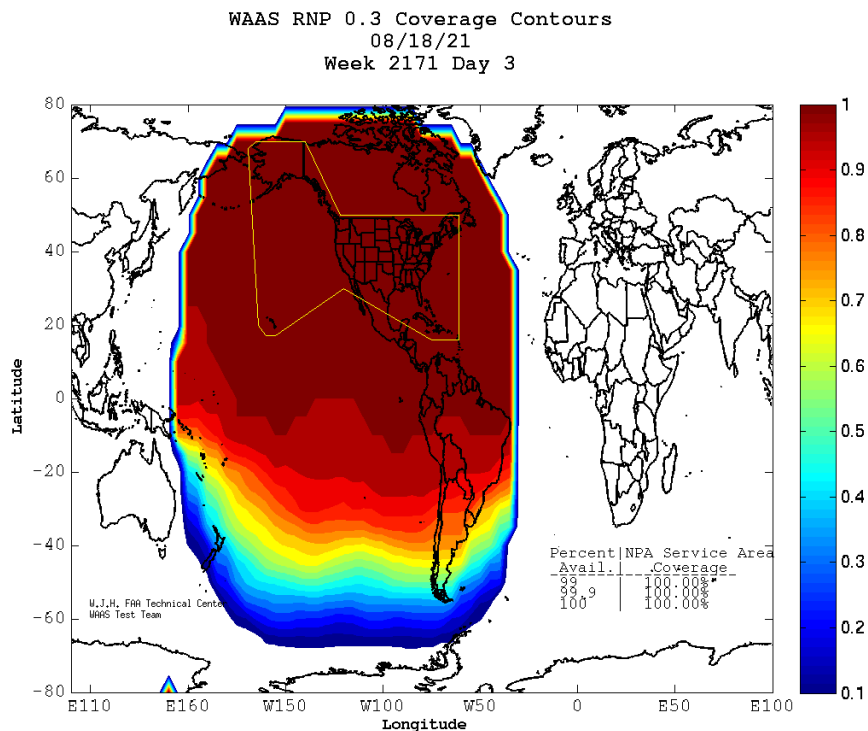
Coverage Data

The coverage data section shows statistics and coverage plots for the WAAS NPA service area. The table shows the 99%, 99.9%, and 100% coverage statistics on the selected day.

Coverage					
RNP0.3 - 100%	RNP0.3 - 99.9%	RNP0.3 - 99%	RNP0.1 - 100%	RNP0.1 - 99.9%	RNP0.1 - 99%
100%	100%	100%	100%	100%	100%

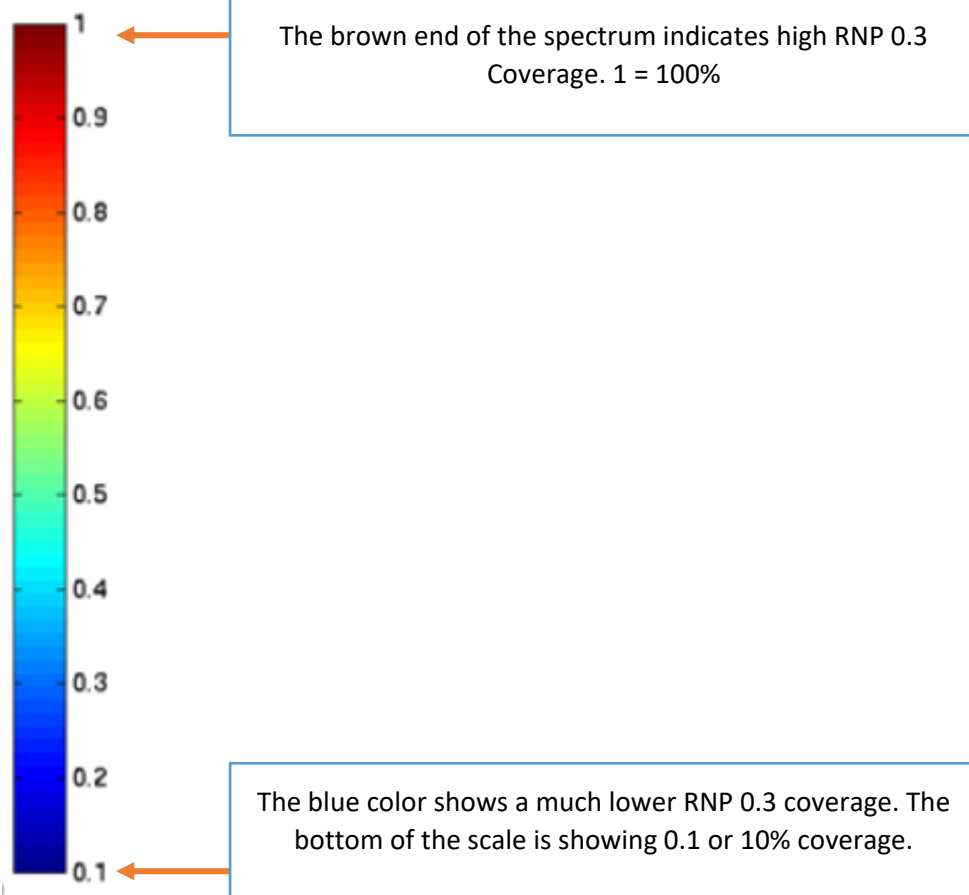
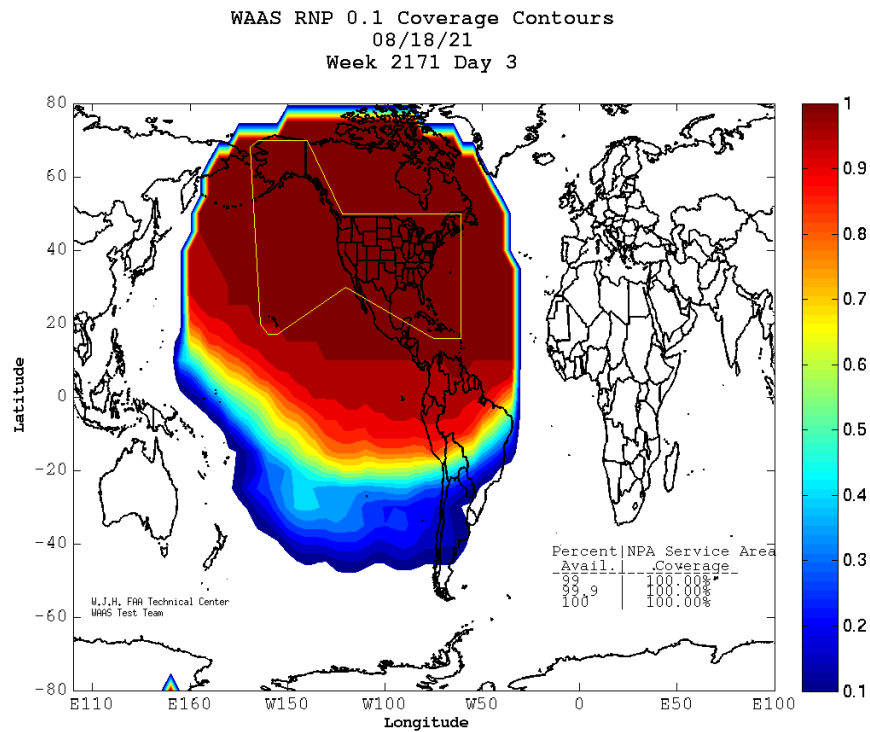
This daily 24-hour plot below depicts the Wide Area Augmentation System (WAAS) Required

Navigation Performance 0.3 (RNP 0.3). For this plot, the day begins at 0:00 Universal Time Coordinated (UTC). The WAAS North American NPA Service Area is outlined by the yellow line in the diagram below. That coverage area is used to determine the percentage of RNP 0.3 coverage. The HPL must be less than 556 meters for RNP 0.3 to be available.



The table within the diagram shows the percentage of WAAS RNP 0.3 available in the NPA Service Coverage Area. The table's first line shows that RNP 0.3 was available 99% of the time in 100% of the area covered in NPA.

RNP1 is the notation for the RNP 0.1 coverage area. The HPL must be less than 185 meters for RNP 0.1 to be available.



The white area in the plot indicates WAAS NPA coverage of < 10%

AvCon

The AvCon section displays data of receiver availability in respect to the continuity of service.

- AvCon = Availability * Continuity

The first display shows a summary of AvCon outages per receiver. The table shows NPA AvCon failures and Cities which were not evaluated.


AvCon Outages					
City	Total Count	Outages	Unavailable Count	AvCon	Problem
Merida	8341	0	0	0	N/E


The second table displays each outage that occurred for every receiver on the selected day.

Outage Times			
RCVR	City	Start Time	End Time
No AvCon Outages			

Data Outages

The Data Outages section displays the number of seconds we did not receive data for a particular receiver. The first table shows the outage totals while the second table shows the continuity. Any outages > 3-seconds are recorded in the bottom box. The bottom box also shows the Time Out and Time In in GMT Time of Week (GPS TOW) and GMT Time in parenthesis.

Outage Summary				
RCVR	City	Number of Outages	Total Missed	
276	Atlantic City-G3B-L1L2	1	86400	
277	Atlantic City-G3B-L1L5	1	86400	
4976	Arcata	1	86400	
27329	Billings	1	1	
33729	Cold Bay	2	2	
35009	Merida	1	77998	
36545	Tapachula	1	86400	
36801	San Jose Del Cabo	9	9	

Outage Times					
RCVR	City	Time Out	Time In	Seconds Missed	
276	Atlantic City-G3B-L1L2	345600 (00:00:01)	431999 (00:00:00)	86400	
277	Atlantic City-G3B-L1L5	345600 (00:00:01)	431999 (00:00:00)	86400	
4976	Arcata	345600 (00:00:01)	431999 (00:00:00)	86400	
35009	Merida	345600 (00:00:01)	423598 (21:39:59)	77998	
36545	Tapachula	345600 (00:00:01)	431999 (00:00:00)	86400	

Please note: For the WAAS sites, one receiver from each Wide-area Reference Station (WRS) is chosen and shown in this tab.